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9-502269 3/1997 (JP).

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* cited by examiner

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(57)

ABSTRACT

A scanning optical microscope comprising a laser source, a scan optical system for scanning a sample with a laser beam from the laser source, a spectral resolving optical system for resolving spectra of fluorescent rays from the sample, a wavelength splitting optical system for splitting the fluorescent rays that have passed the spectral resolving optical system into rays of a plurality of different wavelengths and guiding the split rays to optical paths of the plurality of different wavelengths, a plurality of image forming optical systems, respectively provided in the optical paths of the plurality of different wavelengths, for forming images of the fluorescent rays from the sample, a plurality of confocal apertures respectively provided in the optical paths at focal points of the image forming optical systems, and a plurality of photosensors, respectively provided in the optical paths, for sensing the fluorescent rays from the sample that have passed the respective confocal apertures.

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(58) Field of Search 250/201.3, 234-236,
250/458.1; 356/300, 310, 319, 320, 326

(56) References Cited

U.S. PATENT DOCUMENTS

6,128,077 * 10/2000 Jovin et al. 356/330

6,134,002 * 10/2000 Stimson et al. 356/326

FOREIGN PATENT DOCUMENTS

8-043739A 2/1996 (JP).

6 Claims, 6 Drawing Sheets